AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (CURRENTLY AMENDED) A transmitter arrangement, comprising:

a first modulation unit having a first digital signal processor and a first analogue signal generator;

said first digital signal processor having a first digital signal input;

a first power amplifier, connected to an output of said first analogue signal generator;

a second modulation unit having a second digital signal processor and a second analogue signal generator;

said second digital signal processor having a second digital signal input;

a second power amplifier, connected to an output of said second analogue signal generator;

a combiner device connected to outputs of said first and second power amplifiers; ~~and~~

a transmitter device connected to an output of said combiner device;

a first power monitor sensing a total power to said transmitter device or a quantity directly related thereto; and

a phase-shifter connected to said first power monitor, arranged for causing a phase shift of an analogue signal generated by said first analogue signal generator in response to said sensed total power,

wherein said first digital signal processor further comprises:

at least one first non-constant envelope modulation means;

a first signal component separator connected to an output of said at least one first non-constant envelope modulation means;

a first output of said first signal component separator being connectable to said first analogue signal generator;

first means for receiving modulation instructions;

at least one first constant envelope modulation means connectable to said first analogue signal generator; and

first modulation selecting means for connecting a modulation means to said first digital signal input in response to received modulation instructions, said first modulation selecting means being operable on a time slot basis, and

wherein said transmitter arrangement further comprises means for providing said first and second digital signal inputs with a same digital signal, and said first and second means for receiving instructions with the same instructions of a constant envelope modulation, allowing transmitter coherent combining.

2. (PREVIOUSLY PRESENTED) The transmitter arrangement according to claim 1, wherein said second digital signal processor further comprises:

at least one second non-constant envelope modulation means of the same type as said at least one first non-constant envelope modulation means; and

a second signal component separator connected to an output of said at least one second non-constant envelope modulation means,

wherein an output of said second signal component separator being connectable to said second analogue signal generator, and

a sum of a signal of said first output of said first signal component separator and a signal of said output of said second signal component separator being equal to a signal of said output of said at least one first non-constant envelope modulation means.

3. (PREVIOUSLY PRESENTED) The transmitter arrangement according to claim 1, wherein a second output of said first signal component separator being connectable to said second analogue signal generator.

4. (PREVIOUSLY PRESENTED) The transmitter arrangement according to claim 1, wherein said second digital signal processor further comprises:

second means for receiving modulation instructions;

at least one second constant envelope modulation means connectable to said second analogue signal generator; and

second modulation selecting means for connecting a modulation means to said second digital signal input in response to received modulation instructions.

5. (PREVIOUSLY PRESENTED) The transmitter arrangement according to claim 4, wherein said second modulation selecting means are operable on the time slot basis.

6. (CANCELED)

7. (CURRENTLY AMENDED) The transmitter arrangement according to claim ~~6~~ 1, wherein said first power monitor is a power meter sensing a load of said combiner device.

8. (CURRENTLY AMENDED) The transmitter arrangement according to claim ~~6~~ 1, wherein said phase-shifter comprises means for complex multiplication of said phase shift with a digital signal to be inputted to said analogue signal generator.

9. (CURRENTLY AMENDED) The transmitter arrangement according to claim ~~6~~ 1, using GMSK modulation, wherein said phase-shifter comprises

means for introducing a phase offset in said GMSK modulation, generated by using a table driven state machine in said first digital signal processor.

10. (CANCELED)

11. (CURRENTLY AMENDED) The transmitter arrangement according to claim ~~6~~ 1, further comprising:

second power monitor sensing a power on said output of said first power amplifier and being connected to said phase-shifter; and

third power monitor sensing a power on said output of said second power amplifier and being connected to said phase-shifter;

said phase-shifter being arranged for causing a phase shift in response to a comparison between said sensed total power and said sensed power on said output of said first and second power amplifier, respectively.

12. (PREVIOUSLY PRESENTED) The transmitter arrangement according to claim 1, wherein that said first and second non-constant envelope modulation means are selected from the list of:

4-PSK modulation means;

8-PSK modulation means; and

means for combination of at least two carriers.

13. (PREVIOUSLY PRESENTED) The transmitter arrangement according to claim 4, wherein said first and second constant envelope modulation means are GMSK modulation means.

14. (CURRENTLY AMENDED) A method for generating a transmitter signal in a transmitter arrangement having at least a first and a second modulation unit arranged in parallel, each one allowing for at least one non-constant envelope modulation and at least one constant envelope modulation, said first modulation unit having a first analogue signal generator, said second modulation unit having a second analogue signal generator, the method comprising the acts of:

providing digital signal to said first and second modulation units;

providing modulation information to said first and second modulation units;

creating a first input signal to said first analogue signal generator by performing a constant envelope modulation of a first digital signal provided to said first modulation unit as a response of said modulation information being a request for a constant envelope modulation, and by performing a non-constant envelope modulation of said first digital signal and separating a first component of said non-constant envelope modulated first digital signal as a response of said modulation information being a request for a non-constant envelope modulation;

creating a second input signal to said second analogue signal generator by performing a constant envelope modulation of a second digital signal provided to said second modulation unit as a response of said modulation information being a request for a constant envelope modulation, and by performing a non-constant envelope modulation of said first digital signal and separating a second component of said non-constant envelope modulated first digital signal as a response of said modulation information being a request for a non-constant envelope modulation;

generating a first output signal in said first analogue signal generator according to said first input signal;

generating a second output signal in said second analogue signal generator according to said second input signal;

amplifying said first output signal;

amplifying said second output signal;

combining said first and second amplified output signals to form an analogue transmitter signal,

wherein said providing acts are performed on a time slot basis, and

wherein said modulation information comprises a request for a non-constant envelope modulation, and said second digital signal is identical with said first digital signal, whereby said act of creating a second input signal to said second analogue signal generator is performed on said second signal in said second modulation unit.

15. (CANCELED)

16. (PREVIOUSLY PRESENTED) The method according to claim 14, wherein said modulation information comprises a request for a non-constant envelope modulation, whereby said act of creating a second input signal to said second analogue signal generator is performed on said first signal in said first modulation unit, said method comprising the further act of transferring of said second input signal from said first modulation unit to said second analogue signal generator.

17. (CANCELED)

18. (PREVIOUSLY PRESENTED) The method according to claim 16, wherein said non-constant envelope modulation is a 8-PSK modulation.

19. (PREVIOUSLY PRESENTED) The method according to claim 16, characterized in that said non-constant envelope modulation is a multiple-carrier GMSK modulation, whereby said method comprises the acts of providing a set of at least two digital signals to both said first and said second modulating units, whereby said creating acts comprise the acts of performing a GMSK modulation of each digital signal and digital combining said modulated

signals to form a non-constant envelope multi-carrier signal, whereby said separating act is performed on said non-constant envelope multi-carrier signal.

20. (PREVIOUSLY PRESENTED) The method according to claim 14, wherein said modulation information comprises a request for transmitter coherent combining of a constant envelope modulation signal, and said first digital signal is identical with said second digital signal.

21. (PREVIOUSLY PRESENTED) The method according to claim 16, comprising the further acts of:

monitoring a power of said analogue transmitter signal or a quantity directly related thereto; and

shifting a phase of said first output signal according to said power.

22. (PREVIOUSLY PRESENTED) The method according to claim 21, wherein said monitoring act comprises the act of measuring a power rejected during said combining act, whereby said power of said analogue transmitter signal is provided as a complementary quantity.

23. (PREVIOUSLY PRESENTED) The method according to claim 21, wherein said shifting act in turn comprises the act of adjusting an initial offset

phase of said first or second modulating in a guard period between two time slots.

24. (PREVIOUSLY PRESENTED) The method according to claim 21, wherein said shifting act in turn comprises the act of adding a phase shift in connection to the generation of the first output signal.

25. (PREVIOUSLY PRESENTED) The method according to claim 16, wherein said monitoring and phase shifting is performed when a constant envelope modulation with transmitter coherent combining is used, whereby said phase shifting is preserved when selecting a non-constant envelope modulation.

26. (PREVIOUSLY PRESENTED) The method according to claim 16, wherein said monitoring and phase shifting is performed during transmission of a constant amplitude period of a non-constant envelope signal.

27. (PREVIOUSLY PRESENTED) The method according to claim 16, comprising the further act of measuring instantaneous power of said first and second analogue output signals, whereby said shifting is performed according to a comparison of said power of said analogue transmitter signal and said power of said first and second analogue output signals.

28. (PREVIOUSLY PRESENTED) The method according to claim 27, wherein said shifting in the case of transmitter coherent combining is performed according to:

$$\phi_{shift} = \cos^{-1}(P_{TR}/(P_{TX1} + P_{TX2})),$$

where P_{TR} is said total power and P_{TX1} and P_{TX2} are said power of said first and second analogue output signals, respectively.

29. (PREVIOUSLY PRESENTED) The method according to claim 27, wherein said comparison is performed during a period of a known training sequence in a time slot.

30. (PREVIOUSLY PRESENTED) The method according to claim 14, comprising the further acts of:

reducing envelopes of said first and second signals when said modulated signal has a low amplitude.

31. (PREVIOUSLY PRESENTED) The method according to claim 30, wherein said act of reducing envelopes comprises minimizing of power consumption.

32. (PREVIOUSLY PRESENTED) The method according to claim 14, comprising the further act of:

storing an adjusted phase shift value for each one of a set of used frequencies.

33. (PREVIOUSLY PRESENTED) The method according to claim 32, comprising the further act of:

storing an adjusted phase shift value for each one of a set of used frequency generators for each of said used frequencies.

34. (CURRENTLY AMENDED) A transmitter unit, comprising:

a first modulation unit configured to receive a first digital signal and a first modulation selection signal and configured to output a first radio frequency signal corresponding to the first digital signal modulated according to the first modulation selection signal;

a second modulation unit configured to receive a second digital signal and a second modulation selection signal and configured to output a second radio frequency signal corresponding to the second digital signal modulated according to the second modulation selection signal;

a first power amplifier operatively connected to the first modulation unit and configured to amplify the first radio frequency signal;

a second power amplifier operatively connected to the second modulation unit and configured to amplify the second radio frequency signal;

a combiner operatively connected to the first and second power amplifiers and configured to combine the first and second radio frequency signals and output the combined radio frequency signals to a radio transmitter; and

a power meter configured to measure a power level of the combined radio frequency signals from the combiner,

wherein the first and second modulation units are each operable to apply a modulation scheme according to the first and second modulation selection signal, respectively, on a time slot basis, and

wherein the first modulation unit comprises:

a first modulation selector configured to select one of a constant-envelop modulation scheme and a non-constant-envelop modulation scheme based on the first modulation selection signal;

a first constant-envelop modulator configured to modulate the first digital signal according to the constant-envelop modulation scheme and output first constant-envelop I and Q signals when the constant-envelop modulation scheme is selected;

a first non-constant-envelop modulator configured to modulate the first digital signal according to the non-constant-envelop modulation scheme and output a first non-constant-envelop I and Q signals when the non-constant-envelop modulation scheme is selected;

a first separator configured to separate the first non-constant-envelop I and Q signals from the first non-constant-envelop modulator and into first component I and Q signals and second component I and Q signals;

a phase shifter configured to receive the first constant-envelop I and Q signals from the first constant-envelop modulator and the first component I and Q signals from the first non-constant-envelop modulator and output phase shifted I and Q signals based on the power level of the combined radio frequency signals measured by the power meter; and

a first analogue signal generator configured to receive the phase shifted I and Q signals from the phase shifter and the first constant-envelop I and Q signals from the first constant-envelop modulator and output a first mixed signal at a first carrier frequency, wherein the first mixed signal is provided to the first power amplifier.

35. (CANCELED)

36. (CURRENTLY AMENDED) The transmitter unit of claim ~~35~~ 34, wherein the first and second component I and Q signals from the first separator are first-first and first-second component I and Q signals, respectively,

wherein the second modulation unit comprises:

a second modulation selector configured to select one of the constant-envelop modulation scheme and the non-constant-envelop modulation scheme based on the second modulation selection signal;

a second constant-envelop modulator configured to modulate the second digital signal according to the constant-envelop modulation scheme and output second constant-envelop I and Q signals when the constant-envelop modulation scheme is selected;

a second non-constant-envelop modulator configured to modulate the second digital signal according to the non-constant-envelop modulation scheme and output a second non-constant-envelop I and Q signals when the non-constant-envelop modulation scheme is selected;

a second separator configured to separate the second non-constant-envelop I and Q signals from the second non-constant-envelop modulator and into second-first component I and Q signals and second-second component I and Q signals; and

a second analogue signal generator configured to receive the second-second component I and Q signals from the second separator and output a second mixed signal at a second carrier frequency, wherein the second mixed signal is provided to the second power amplifier.

37. (PREVIOUSLY PRESENTED) The transmitter unit of claim 36, wherein the second modulation unit does not include a phase shifting device.

38. (CURRENTLY AMENDED) The transmitter unit of claim ~~35~~ 34, wherein the second modulation unit comprises:

a second constant-envelop modulator configured to modulate the second digital signal according to the constant-envelop modulation scheme and output second constant-envelop I and Q signals when the constant-envelop modulation scheme is selected;

a second analogue signal generator configured to receive the second constant-envelop I and Q signals from the second constant-envelop modulator and the second component I and Q signals from the first separator of the first modulation unit and output a second mixed signal at a second carrier frequency, wherein the second mixed signal is provided to the second power amplifier.

39. (CURRENTLY AMENDED) The transmitter unit of claim ~~35~~ 34, wherein the first separator is configured such that a vector sum of the first and second component I and Q signals is substantially equal to the first non-constant-envelop I and Q signals from the first non-constant-envelop modulator.